

United States District Court  
For the Northern District of California

IN THE UNITED STATES DISTRICT COURT  
FOR THE NORTHERN DISTRICT OF CALIFORNIA

3COM CORP., No C 03-2177 VRW

Plaintiff,

v

D-LINK SYSTEMS, INC.,

Defendant,

and

REALTEK SEMICONDUCTOR CORP.,

Intervenor.

---

3COM CORP.,

No C 05-0098 VRW

Plaintiff,

ORDER

v

D-LINK SYSTEMS, INC.,

Defendant.

---

/

On April 14, 2006, the court held a claim construction hearing pursuant to Markman v Westview Instruments, Inc, 517 US 370 (1996). Based on the parties' arguments at the hearing and their submissions, the court issues the following claim construction order, which applies to both of the above-captioned matters.

## United States District Court

For the Northern District of California

1           In the 03-2177 action, plaintiff 3Com Corporation (3Com)  
2 originally asserted six network-interface-technology patents  
3 against defendant D-Link Systems, Inc (D-Link) and intervening-  
4 defendant Realtek Semiconductor Corporation (Realtek): United  
5 States patents 5,307,459, 5,434,872, 5,732,094, 6,327,625,  
6 6,526,446 and 6,570,884. 3Com and D-Link have since settled claims  
7 in the 03-2177 action, leaving as the Realtek sole defendant in  
8 that action. In the 05-0098 action, 3Com asserts the '625 and '884  
9 patents against D-Link. Claims in the '625 patent were construed  
10 in conjunction with summary judgement in a prior order. Doc #206  
11 (05-0098) at 6-15.

12           As the court writes principally for the parties, it will  
13 not discuss the details of the inventions or define terms well-  
14 known to those skilled in the art, except as is necessary to  
15 construe the claims of the patents.

## I

16  
17           The construction of patent claims is a question of law to  
18 be determined by the court. Markman, 517 US 370. The goal of  
19 claim construction is "to interpret what the patentee meant by a  
20 particular term or phrase in a claim." Renishaw PLC v Marposs  
21 Societa per Azioni, 158 F3d 1243, 1249 (Fed Cir 1998). In  
22 determining what a patentee meant by a term or phrase, the court  
23 looks first to the claim itself:

24  
25           The claims of the patent provide the concise formal  
26 definition of the invention. They are the numbered  
27 paragraphs which "particularly [point] out and  
28 distinctly [claim] the subject matter which the  
applicant regards as his invention." 35 USC § 112.  
It is to these wordings that one must look to  
determine whether there has been infringement.

Courts can neither broaden nor narrow the claims to give the patentee something different [from] what he has set forth. No matter how great the temptations of fairness or policy making, courts do not rework claims. They only interpret them.

E I Du Pont de Nemours & Co v Phillips Petroleum Co, 849 F2d 1430, 1433 (Fed Cir 1988).

"[T]he claims define the scope of the right to exclude; the claim construction inquiry, therefore, begins and ends in all cases with the actual words of the claim." Renishaw, 158 F3d at 1248. "The words used in the claims are examined through the viewing glass of a person skilled in the art." Brookhill-Wilk 1, LLC v Intuitive Surgical, Inc, 326 F3d 1215, 1220 (Fed Cir 2003). The court may, if necessary, consult a variety of sources to determine the ordinary and customary meaning of a claim term, including "the words of the claims themselves, the remainder of the specification, the prosecution history and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms and the state of the art." Innova/Pure Water, Inc v Safari Water Filtration Systems, Inc, 381 F3d 1111, 1116 (Fed Cir 2004).

The court begins its construction of claim terms by consulting intrinsic evidence of the meaning of disputed claim terms, which includes the claims, other portions of the specification and the prosecution history. Lacks Industries, Inc v McKechnie Vehicle Components USA, Inc, 322 F3d 1335, 1341 (Fed Cir 2003). "If upon examination of this intrinsic evidence the meaning of the claim language is sufficiently clear, resort to 'extrinsic' evidence, such as treatises and technical references, as well as expert testimony when appropriate, should not be necessary." Digital Biometrics, Inc, v Identix, Inc, 149 F3d 1335, 1344 (Fed

## United States District Court

For the Northern District of California

1 Cir 1998). “[I]f after consideration of the intrinsic evidence  
2 there remains doubt as to the exact meaning of the claim terms,  
3 consideration of extrinsic evidence may be necessary to determine  
4 the proper construction.” Id. Although extrinsic evidence such as  
5 expert and inventor testimony, dictionaries and learned treatises  
6 can shed useful light on the relevant art, extrinsic evidence is  
7 “less significant than the intrinsic record in determining ‘the  
8 legally operative meaning of claim language.’” Phillips v AWH Corp, 415 F3d 1303, 1317 (Fed Cir 2005)(en banc), quoting C R Bard, Inc v United States Surgical Corp, 388 F3d 858, 862 (Fed Cir 2004).

11 “[A] court may constrict the ordinary meaning of a claim  
12 term in at least one of four ways”: (1) “if the patentee acted as  
13 his own lexicographer and clearly set forth a definition of the  
14 disputed claim in either the specification or prosecution history;”  
15 (2) “if the intrinsic evidence shows that the patentee  
16 distinguished that term from prior art on the basis of a particular  
17 embodiment, expressly disclaimed subject matter or described a  
18 particular embodiment as important to the invention;” (3) “if the  
19 term chosen by the patentee so deprives the claim of clarity as to  
20 require resort to other intrinsic evidence for a definite meaning;”  
21 and (4) “if the patentee phrased the claim in step- or means-plus-  
22 function format,” then “a claim term will cover nothing more than  
23 the corresponding structure or step disclosed in the specification,  
24 as well as equivalents thereto.” CCS Fitness, Inc v Brunswick Corp, 288 F3d 1359, 1366-67 (Fed Cir 2002) (internal citations and  
25 quotation marks omitted).

27 Limitations from the specification, such as from the  
28 preferred embodiment, cannot be read into the claims absent an

**United States District Court**

For the Northern District of California

1 express intention to do so. Teleflex, Inc v Ficosa North America  
2 Corp, 299 F3d 1313, 1326 (Fed Cir 2002) ("The claims must be read  
3 in view of the specification, but limitations from the  
4 specification are not to be read into the claims."). And "a  
5 construction that excludes a preferred embodiment 'is rarely, if  
6 ever, correct.'" C R Bard, Inc v United States Surgical Corp, 388  
7 F3d 858, 865 (Fed Cir 2004), quoting Vitronics Corp v Conceptronic,  
8 Inc, 90 F3d 1576, 1583 (Fed Cir 1996). Conversely:

9       Where the specification makes clear that the  
10 invention does not include a particular  
11 feature, that feature is deemed to be outside  
12 the reach of the claims of the patent, even  
13 though the language of the claims, read without  
14 reference to the specification, might be  
15 considered broad enough to encompass the  
16 feature in question.

17       SciMed Life Systems, Inc v Advanced Cardiovascular Systems, Inc,  
18 242 F3d 1337, 1341 (Fed Cir 2001).

19       "[C]laims should be construed to preserve their validity"  
20 only in "cases in which 'the court concludes, after applying all  
21 the available tools of claim construction, that the claim is still  
22 ambiguous.'" Phillips, 415 F3d at 1327, quoting Liebel-Flarsheim  
23 Co v Medrad, Inc, 358 F3d 898, 911 (Fed Cir 2004).

24       With these legal principles in mind, the court construes  
25 the disputed claim language of the patents.

26       //  
27       //  
28       //  
29       //  
30       //  
31       //  
32       //  
33       //  
34       //  
35       //  
36       //  
37       //  
38       //

## III

Every patent in this litigation relates to network-interface technology, which facilitates the transfer of data between a host device (such as a personal computer) and a network. Data transferred between the host and a network must first be formatted into data "packets" or "frames," which are bits of data that have been packaged for transmission according to standardized network protocols. Network-interface devices that are the subject of the patents contain buffer memory for temporarily storing packets that are being received from the host and transmitted to a network (or vice versa). A particular type of buffer memory that receives, stores and transmits data packets in the order they are received from the host or network is known as a "first-in, first-out" or "FIFO" buffer.

## A

The '872 and '094 Patents

The court finds it appropriate to consider these patents together because the '094 patent is a continuation of the '872 patent and because the same terms are disputed in each of these patents. Since the '872 and the '094 patents have nearly identical specifications, the court will cite only the '872 patent to avoid redundancy. The '872 and '094 patents disclose a network-interface with improved buffer memory.

The prior art includes two types of buffers: transmit buffers and FIFO buffers. Transmit buffers can efficiently handle transmission failures because if transfer of a frame fails then "data may be retained in the transmit data buffer until the sending

1 system initiates a second attempt to transmit the frame." '872  
2 patent at 1:44-47. Transmit buffers, however, "suffer[] from the  
3 disadvantage that transmission of a frame is delayed until the  
4 entire frame has been downloaded into the buffer." Id at 1:58-61.  
5 FIFO buffers have relatively high throughput because a data frame  
6 can be transmitted out even as it is being received in, but the  
7 "data in FIFOs cannot be retained and reused" in case of a  
8 transmission failure. Id at 1:49-50. The goal of both inventions  
9 is "to provide the advantages of a transmit data buffer, while  
10 maintaining the communications throughput available from the  
11 simpler FIFO based systems." Id at 2:7-10. The '872 and '094  
12 patents attempt to achieve the advantages of both transmit buffers  
13 and FIFO buffers by allowing high throughput as well as efficient  
14 retransmission of frames.

15  
16 1. "buffer" or "buffer memory"

17 These terms are located in several claims in both the  
18 '872 patent and the '094 patent. Doc #81 at 13-14. The parties  
19 dispute whether these terms should be ascribed their ordinary  
20 meaning. 3Com proposes the dictionary-derived construction "a  
21 memory for temporary storage of data." Id at 13, 19. Realtek  
22 proposes the construction "a memory that (1) stores frame data such  
23 that the frame data can be retrieved independently of the order in  
24 which the frame data were stored and the frame data can always be  
25 retained and reused; and (2) is not a first-in-first-out (FIFO)  
26 system." Id at 13-14, 19. The primary issue before the court is  
27 whether the specification rebuts the presumption that the terms  
28 should be ascribed their ordinary meaning.

1           Realtek contends that the patentee disclaimed FIFO-based  
2 systems in the specification. Specifically, Realtek argues that  
3 the specification "explains the shortcomings and problems of prior  
4 FIFO-based systems." Doc #333 at 12. An inventor "may use the  
5 specification [intentionally] to [] disclaim or disavow the broad  
6 scope of a claim. However, this intention must be clear." Conoco,  
7 Inc v Energy & Environmental Intern, L C, 460 F3d 1349, 1357 (Fed  
8 Cir 2006) (internal citations omitted). While the specification  
9 does highlight the shortcomings of FIFO-based systems, the  
10 specification also lauds the "communications throughput available  
11 from the simpler FIFO-based systems." '872 patent at 2:8-10. The  
12 specification's mix of praise and criticism is not a "clear  
13 disavowal" of FIFO technology.

14           Realtek further argues that prosecution history supports  
15 its proposed construction. Doc #333 (03-2177) at 15-16. Realtek  
16 relies on a statement differentiating the Firoozmand reference from  
17 the claimed invention. 3Com stated that the claimed application  
18 described a "much more sophisticated control environment than that  
19 required by the FDDI system of Firoozmand." Doc #339 (Gutman decl)  
20 (03-2177) Ex F at 5. Realtek argues that this statement  
21 distinguishes the claimed invention from a "FIFO-based scheme."  
22 Doc #333 (03-2177) at 16. 3Com argues that this statement, read in  
23 context, describes a "CSMA/CD network (such as Ethernet) as more  
24 sophisticated than a token ring network" and does not address "the  
25 relative sophistication of a FIFO buffer." Doc #340 (03-2177) at  
26 8. The paragraph in question discusses details related to CSMA/CD  
27 networks such as frame transmission, collisions and backoff. Doc  
28 #339 (Gutman decl) (03-2177) Ex F at 5. Viewed in context, the

## United States District Court

For the Northern District of California

1 court finds that this statement is unrelated to buffer or buffer  
2 memory and has no bearing on construction of the terms "buffer" or  
3 "buffer memory."

4 In addition, Realtek points to the "Vulcan" document the  
5 patentee used to "swear behind" the Firoozmand reference. Doc #333  
6 (03-2177) at 16-17. Realtek concedes that the Vulcan document  
7 "shows that the inventors once contemplated using the prior FIFO-  
8 based technique of transmitting early a packet once the amount of  
9 data in [FIFO] reached a threshold." Doc #333 (03-2177) at 17.  
10 According to Realtek, "understanding that the FIFO disclosed in the  
11 Firoozmand and Vulcan prior art could not retain and reuse data  
12 frames, the inventors replaced the FIFO with a transmit buffer in  
13 order to avoid the major disadvantage of a FIFO." Id. As 3Com  
14 points out, however, the purpose of "swearing behind" was to show  
15 an earlier invention date. Doc #340 (03-2177) at 8. If the Vulcan  
16 document showed a different invention than the claimed invention,  
17 the Vulcan document could not be used to prove an earlier date of  
18 invention. Rather than disclaiming FIFO-based devices, the  
19 prosecution history confirms that use of FIFO buffers in the  
20 claimed invention was specifically contemplated by the patentee.

21 Realtek argues that construing the claims as 3Com  
22 suggests would render the claims invalid as reading on prior art or  
23 being unsupported by written description. Doc #333 (03-2177) at  
24 14. Realtek further argues that "[o]ne of the well-established  
25 maxims of claim construction is that the claims should not be so  
26 broadly interpreted as to read on prior art." Id. But the court  
27 only applies this claim construction maxim if the disputed claim  
28 term is ambiguous.

1           While we have acknowledged the maxim that  
2        claims should be construed to preserve their  
3        validity, we have not applied that principle  
4        broadly, and we have certainly not endorsed a  
5        regime in which validity analysis is a regular  
6        component of claim construction. Instead, we  
7        have limited the maxim to cases in which "the  
8        court concludes, after applying all the  
9        available tools of claim construction, that the  
10      claim is still ambiguous."

11      Phillips, 415 F3d at 1327, quoting Liebel-Flarsheim, 358 F3d at  
12      911. The claim terms at issue are not ambiguous. Both the plain  
13      meaning and the prosecution history support the construction that  
14      3Com proposes.

15      For the reasons stated above, the court adopts 3Com's  
16      proposed construction "a memory for temporary storage of data."

17      2. "falls behind" or "underrun"

18      The parties initially disputed the meaning of these terms  
19      but agreed to a mutually acceptable construction at the Markman  
20      hearing. Doc #360 (03-2177) at 45:22-25; Doc #340 at 15. The  
21      court adopts "a condition in which the receiving of data into the  
22      buffer is not keeping up with the transmitting of data out of the  
23      buffer."

24      3. "optimizing the threshold"

25      This term is found in claim ten of the '872 patent and  
26      claim twenty-one of the '094 patent. '872 patent at 31:36-37; '094  
27      patent at 30:32. 3Com proposes "attempting to make the  
28      transmission of frames more efficient." Doc #81 (05-0098) at 17,  
29      23. This proposal is insufficient because it fails to give effect  
30      to the "threshold" portion of the term under construction. Realtek

## United States District Court

For the Northern District of California

1 adds "dynamically" and "by the host system" to the otherwise  
2 appropriate construction "dynamically changing the threshold value  
3 by the host system to make it as perfect, effective or functional  
4 as possible." Id at 17, 23.

5 Realtek contends that "dynamically" is required because  
6 "using the status information as feedback for the threshold value  
7 would be thwarted" if "altering the threshold could be a one-time  
8 event." Doc #333 (03-2177) at 24. Realtek, however, does not  
9 argue that altering the threshold a single time would render either  
10 claim ten of the '872 patent or claim twenty-one of the '094 patent  
11 inoperative. Nor does the specification require multiple  
12 alterations, although 3Com could have easily drafted a claim that  
13 did require multiple alterations of the threshold value. A person  
14 of ordinary skill in the art would conclude the patentee did not  
15 intend "optimizing the threshold" to mean altering the threshold  
16 value multiple times.

17 Realtek also includes the term "by the host system,"  
18 pointing out that the status information is "for use by the host  
19 system." Doc #333 (03-2177) at 24. Again, Realtek does not argue  
20 the claims in question are inoperable without this limitation, nor  
21 does the specification require usage by the host system. This  
22 argument is similarly unpersuasive.

23 3Com objects to Realtek's language as too "absolutist."  
24 Doc #340 (03-2177) at 14. 3Com argues that "each optimization step  
25 is simply an attempt to make the transmission of frames more  
26 efficient rather than a dynamic change \* \* \* to make it as perfect,  
27 effective or functional as possible." Id at 15 (quotations  
28 omitted). When the term is viewed in context, there is no

1 practical difference between these positions. More fully, claim  
2 ten recites "feedback for optimizing the threshold." The context  
3 of the term clarifies that "optimizing" merely indicates a  
4 direction of progress and that perfection need not be achieved. It  
5 is irrelevant whether the purpose of the feedback is to make  
6 transmission "more efficient" or to "make it as perfect, effective  
7 or functional as possible." Both formulations produce the same  
8 effect, so 3Com's "absolutist" fears are unjustified. 3Com's  
9 objection to Realtek's proposal is unpersuasive.

10 Aside from the issues noted above, the court finds D-  
11 Link's proposal otherwise acceptable. Accordingly, the court  
12 adopts the modified construction, "changing the threshold value to  
13 make it as perfect, effective or functional as possible."

14

15 4. "altering the threshold"

16 This term is offered for construction only for purposes  
17 of the '094 patent and appears in claim forty-seven. '094 patent  
18 at 32:58. The dispute centers not on the phrase as a whole but on  
19 the term "altering." 3Com proposes "changing." Doc #81 (03-2177)  
20 at 26. Realtek proposes "dynamically changing." Id.

21 As discussed above, Realtek suggests "dynamically" to  
22 capture the repeated nature of the operation. Doc #333 (03-2177)  
23 at 23-25. Although the specification contemplates practicing the  
24 method multiple times, there is no evidence that the specification  
25 requires practicing the method multiples times or that the method  
26 is inoperative if practiced only once.

27 Because Realtek's construction is flawed and 3Com has not  
28 provided any reason why this seemingly simple term must be

United States District Court  
For the Northern District of California

1 construed, the court declines to construe the term "altering."

2

3 5. "means, coupled with the buffer memory and including a host  
4 system alterable threshold store for storing a threshold  
5 value, for monitoring the transferring of data of a frame to  
the buffer memory to make a threshold determination of an  
amount of data of the frame transferred to the buffer memory"

6 This term appears only in claim ten of the of the '872  
7 patent. '872 patent at 31:16-22. The parties dispute whether  
8 "coupled with the buffer memory and including a host system  
9 alterable threshold store for storing a threshold value" should be  
10 interpreted according to 35 USC §112(6). 3Com again argues that  
11 §112(6) should not apply to this portion of the limitation. Doc  
12 #81 (05-0098) at 53-54. Realtek again argues that §112(6) should  
13 apply to the entire limitation.

14 Paragraph six of §112 applies to functional language  
15 "without the recital of structure, material, or acts in support  
16 thereof." 35 USC § 112. While the claim is somewhat unusual in  
17 form, it does appear that the language set off by commas does  
18 define structure. The terms "coupled," "buffer memory" and  
19 "alterable threshold store" are all structural rather than  
20 functional elements. Accordingly, the court holds that "coupled  
21 with the buffer memory and including a host system alterable  
22 threshold store for storing a threshold value" should not be  
23 interpreted according to §112(6).

24 //

25 //

26 //

27 //

28 //



## 1    1.    "buffer" or "buffer memory"

2                 Both parties assert that this term should be given the  
3 same construction as for the '872 and '094 patents. Realtek argues  
4 that the '459 patent "includes the same transmit buffer" and  
5 "operates in the same way in the '872 and '094 patents." Doc #333  
6 at 17. 3Com proposes "a memory for temporary storage of data," the  
7 same construction the court applied to the '872 and '094 patents.  
8 Doc #81 (05-0098) at 3; see section III A, supra. The court adopts  
9 the same construction as the '872 and '094 patents, "a memory for  
10 temporary storage of data."

11  
12    2.    "alterable storage location"

13                 The parties dispute whether this term should be ascribed  
14 its ordinary meaning. 3Com offers the dictionary-derived  
15 construction "a storage location whose value is changeable." Doc  
16 #81 (05-0098) at 1. Realtek argues that "alterable" does not mean  
17 simply "changeable," but rather "dynamically changeable." Doc #333  
18 (03-2177) at 19-21. Realtek thus proposes the construction "a  
19 storage location whose value is dynamically changeable." Doc #81  
20 (05-0098) at 1.

21                 Realtek once again suggests "dynamically" to capture the  
22 repeated nature of the operation. For example, Realtek quotes a  
23 passage in the specification that status information "may be used  
24 by the host processor as feedback for optimizing the threshold  
25 value in the alterable storage location." Doc #333 (03-2177) at  
26 20. Realtek, however, fails to show that repeated nature is  
27 required by the specification. The word "may" in the quoted  
28 passage undermines Realtek's argument by declaring that usage of

## United States District Court

For the Northern District of California

1 the status information is optional. Accordingly, the court  
2 declines to add "dynamically" to the construction.

3 Realtek argues that "claims should not be interpreted so  
4 broadly as to read on prior art." Doc #333 (03-2177) at 21. The  
5 Federal Circuit has explicitly "limited the maxim to cases in which  
6 'the court concludes, after applying all the available tools of  
7 claim construction, that the claim is still ambiguous.'" Phillips,  
8 415 F3d at 1327, quoting Liebel-Flarsheim, 358 F3d at 910. Claim  
9 one is not ambiguous. Accordingly, the court adopts "storage  
10 location whose value is changeable."

11

12 3. "indication signal"

13 3Com proposes "a signal that indicates a subsequent  
14 action, such as an interrupt." Doc #81 (05-0098) at 7. Realtek  
15 proposes "a signal that is not an interrupt but may be used by the  
16 host system to generate an interrupt." Id. The dispute revolves  
17 around what the indication signal indicates.

18 In order to evaluate the parties' proposed constructions,  
19 it is useful first to understand "interrupt." In the context of  
20 computer technology, an interrupt is a "signal to a computer that  
21 stops the execution of running program so that another action can  
22 be performed." American Heritage Dictionary of the English  
23 Language (4th ed 2000). It is clear from the specification of the  
24 '459 patent that the patentee used the term interrupt in this  
25 manner. See '459 patent at 1:49-54. With this ordinary meaning in  
26 mind, the court turns to the language of the claims.

27 Realtek argues that claim five shows that "the indication  
28 signal cannot be the interrupt signal; otherwise, the interrupt

1 signal of claim five would have no meaning." Doc #333 (03-2177) at  
2 18. Claim five reads:

3 The apparatus of claim 1, wherein the network  
4 interface logic includes:

5 control means for generating an interrupt  
6 signal to the host processor responsive to  
7 the indication signal and posting status  
information which may be used by the host  
processor as feedback for optimizing the  
threshold value.

8 '459 patent at 43:31-38. This language shows that the indication  
9 signal and interrupt signal are different things. Nothing about  
10 this language, however, excludes the possibility that the  
11 indication signal and interrupt signal could both be interrupts.  
12 Accordingly, the court rejects Realtek's proposed construction.

13 3Com proposes "a signal that indicates a subsequent  
14 action, such as an interrupt." Doc #81 (05-0098) at 7. The  
15 intrinsic evidence shows not only that the indication signal  
16 heralds the arrival of a subsequent action, but that this action is  
17 an interrupt. Claims five and twenty-two recite "generating an  
18 interrupt signal to the host processor responsive to the indication  
19 signal." '459 patent at 43:34-46; 44:46-69. Claim thirty-four  
20 includes an "indication signal, which reduces host processor  
21 interrupt latency." Id at 45:62-63. Claim forty-four, fifty and  
22 fifty-two recite "generating an interrupt signal to the host  
23 processor, responsive to the early transfer indication signal,  
24 which reduces host processor interrupt latency." Id at 47:35-38;  
25 48:31-34. In addition, the specification discloses that it is  
26 "desirable to provide a network adapter with an optimized  
27 indication signal \* \* \* which reduces interrupt latency." Id at  
28 2:22-25.

United States District Court  
For the Northern District of California

1           Intrinsic evidence demonstrates a sole purpose for the  
2 indication signal: indicating the arrival of a subsequent  
3 interrupt. Accordingly, the court adopts the construction "a  
4 signal that indicates a subsequent interrupt."

5

6 4. "means for comparing the counter to the threshold value in the  
7 alterable storage location and generating an indication signal  
8 to the host processor responsive to a comparison of the  
counter and the alterable storage location"

9           The parties dispute whether "generating an indication  
10 signal to the host processor responsive to a comparison of the  
11 counter and the alterable storage location" should be construed as  
12 a "means-plus-function" limitation under 35 USC §112(6). 3Com  
13 contends that "generating an indication signal to the host  
14 processor responsive to a comparison of the counter and the  
15 alterable storage location" should not be governed by §112(6). Doc  
16 #81 (05-0098) at 53. Realtek contends that §112(6) should apply to  
the entire limitation. *Id.*

17           The court finds that §112(6) applies to "generating" for  
18 two reasons. First, "generating" is a function, not a structure.  
19 Paragraph six of §112 applies to functional language "without the  
20 recital of structure, material, or acts in support thereof." In  
21 the absence of defined structure, "generating" must fall under  
22 §112(6). Second, the grammatical structure of the claim suggests  
23 generating is to be considered part of single element. Patents,  
24 including the '459 patent, are structured with a series of elements  
25 separated by semicolons. The patentee could have inserted a  
26 semicolon before "generating" to indicate the start of a new  
27 element. While not dispositive, the absence of a semicolon  
28

1 suggests that a single limitation prefaced by "means" was intended.  
2 "A claim limitation that actually uses the word 'means' invokes a  
3 rebuttable presumption that § 112(6) applies." CCS, 288 F3d at  
4 1369. Accordingly, the court finds that §112(6) applies to the  
5 entire term identified above.

6

7

C

8

The '446 Patent

9 The '446 patent relates to an improved network  
10 controller. Network controllers send and receive data over a  
11 computer network using standardized network protocols.

12 Modern network protocols, such as Ethernet, allow  
13 participants of a network to send data over the network in bundles  
14 known as "frames." These frames represent discrete bundles of data  
15 transmitted over a physical wire connection. Frames are often  
16 limited in size; network transmissions that exceed this size must  
17 be broken up into multiple frames through a process known as  
18 segmentation. The '446 patent teaches an improved approach to  
19 segmentation.

20 One method of segmentation is to allow the central  
21 processing unit (CPU) of the host computer to perform the  
22 segmentation in main memory. '446 patent at 1:38-63. This scheme  
23 requires the CPU to break a larger chunk of data into smaller  
24 chunks for transmission. The advantage of this scheme is that the  
25 network interface can be very simple and inexpensive. The  
26 disadvantage of this approach is that the segmentation process  
27 becomes a bottleneck to performance, preventing high network  
28 speeds. Another method of segmentation is to allow the network

## United States District Court

For the Northern District of California

1 interface to perform the segmentation in a network buffer. Id at  
2 1:64-2:14. The '446 patent discloses an "improved method and  
3 system for providing significantly improved data throughput of a  
4 network connection which is used with a high speed network." Id at  
5 2:22-25.

6 The parties dispute three terms in this patent, two of  
7 which appear in independent claim 1, which states in full (with the  
8 disputed terms underlined):

9 A circuit for implementing transmission control protocol  
10 segmentation, said circuit comprising:

11 a segment circuit coupled to receive a descriptor  
12 from a host device which corresponds to data, said  
segmentation circuit utilizes said descriptor to generate  
a frame segment descriptor;

13 a data download circuit coupled to said segmentation  
14 circuit to receive said frame segment descriptor, said  
data download circuit retrieves said data from a memory;  
and

15 a medium access control circuit coupled to said data  
16 download circuit to receive said data in a frame segment.

17 '446 patent at 14:13-22. The remaining disputed term, "a  
descriptor signal which corresponds to data stored within memory,"  
18 appears in claim 26. Id at 14:16-17.

20  
21 1. "frame segment descriptor"

22 3Com's proposal of "a descriptor for a frame segment" is  
23 of little help, merely reordering the words of the term to be  
24 construed. Doc #81 (05-0098) at 35. Realtek proposes "a  
25 descriptor identifying where the corresponding segment is in the  
host memory." Id.

27 Upon review of the intrinsic evidence, Realtek's proposal  
28 appears to describe the frame segment descriptor accurately. "The

1 segmentation circuit utilizes the descriptor to generate other  
2 descriptors that describe each frame segment." '446 patent 2:29-  
3 31. This shows that the frame segment descriptors are created from  
4 a higher level descriptor. "[D]escriptor queue 206 serves an empty  
5 flag along with the stored descriptors to TCP segmentation state  
6 machine 208." '446 patent 6:48-50. If the descriptor must be  
7 segmented into frames, the "TCP segmentation state machine 208  
8 creates another set of descriptors wherein each descriptor  
9 describes a fragment or a segment of the data file." '446 patent  
10 6:59-61. Although not described explicitly as "frame segment  
11 descriptors" the "set of descriptors" mentioned above are created  
12 from higher level descriptors served to the TCP segmentation state  
13 machine and are created only when segmentation into frames is  
14 required. Accordingly, this "set of descriptors" must be a set of  
15 "frame segment descriptors." Each frame segment descriptor  
16 "describes a fragment or segment of the data file." '446 patent  
17 6:60-61. The frame segment descriptors include "pointers to where  
18 the data file (payload) is stored within host memory." '446 patent  
19 7:4-5. Because the intrinsic evidence is consistent with Realtek's  
20 proposal, the court adopts "a descriptor identifying where the  
21 corresponding segment is in the host memory."

22

23 2. "data download circuit"

24 3Com proposes "a circuit that retrieves data from  
25 memory." Doc #81 (05-0098) at 31. Realtek proposes "the circuitry  
26 that downloads data corresponding to the frame segment descriptor."  
27 Id. The court looks to intrinsic evidence to ascertain the  
28 meaning.

## United States District Court

For the Northern District of California

1           The specification discloses that the "data download  
2 circuit [is] coupled to the segmentation circuit to receive the  
3 frame segment descriptors." '446 patent at 2:31-33. The  
4 specification also discloses that the "data download circuit uses  
5 the frame segment descriptor to retrieve the data from memory."  
6 '446 patent at 10:60-61. Given this evidence, a person of ordinary  
7 skill in the art would interpret the coined term "data download  
8 circuit" to refer to a structure that downloads data corresponding  
9 to the frame segment descriptor.

10           3Com objects to Realtek's narrow proposed construction  
11 because "sometimes the data download circuit downloads data that  
12 corresponds to descriptors that are not frame segment descriptors.  
13 Doc #340 at 19. But claim 26 requires the data download circuit to  
14 download data corresponding to a descriptor signal. '446 patent at  
15 14:13-22. If the data download circuit downloads other data, it  
16 would not be within the method described by claim 26. Accordingly,  
17 the court adopts Realtek's proposed construction "the circuitry  
18 that downloads data corresponding to the frame segment descriptor."

19  
20        3. "a descriptor signal which corresponds to data stored within  
21           memory"

22           3Com proposes "a descriptor signal which describes data  
23 stored within host memory." Doc #81 (05-0098) at 34. Realtek  
24 proposes "a signal indicating where the corresponding data is in  
25 the host memory." Doc #81 (05-0098) at 34.

26           3Com argues that this term should be given its ordinary  
27 meaning. Doc #340 (03-2177) at 15. Realtek, however, criticizes  
28 3Com's proposal as "so broad as to be meaningless." Doc #333 (03-

## United States District Court

For the Northern District of California

1 2177) at 28. The court agrees that this definition is likely too  
2 broad to be helpful.

3 Realtek argues that "the specification uses 'descriptor  
4 signal' and 'descriptor' as synonyms." Doc #333 (03-2177) at 26.  
5 Realtek compares claim twenty-six's statement of "using said  
6 descriptor signal to generate a frame segment descriptor using a  
7 segmentation circuit" with claim one's statement that "said  
8 segmentation circuit utilizes said descriptor to generate a frame  
9 segment descriptor." '446 patent at 12:51-53; 14:18-19. This  
10 evidence shows that the "descriptor" and "descriptor signal" are  
11 closely related. It is not, however, sufficient to show that the  
12 "descriptor" and "descriptor signal" are synonyms.

13 3Com argues that the "first signal" from claim fifteen is  
14 the same as the "descriptor signal." Doc #340 at 16. Given the  
15 common designation "signal," the lack of any other signal and the  
16 similar function performed by these two signals, the court finds  
17 this argument is persuasive. Further, 3Com's position that the  
18 "descriptor signal indicates where a descriptor is stored within  
19 the host memory" is consistent with the observation above that the  
20 descriptor signal and descriptor are closely related. '446 patent  
21 at 13:35-36. 3Com's argument, however, appears to support  
22 Realtek's proposal. If the "descriptor signal indicates where a  
23 descriptor is stored within the host memory," the descriptor signal  
24 surely corresponds to the descriptor. Further, the descriptor is  
25 stored in host memory. Accordingly, the descriptor signal is "a  
26 signal indicating where the corresponding data are in the host  
27 memory."

28 The court is, therefore, in the strange position of

1 accepting 3Com's argument and Realtek's proposal. The court adopts  
2 the construction "a signal indicating where the corresponding data  
3 are in the host memory."

4

5

E

## The '884 Patent

The '884 patent discloses a "Receive Filtering for Communication Interface." The parties dispute three terms in this patent, all of which appear in independent claim 1, which states in full (with the disputed terms underlined):

An interface in which packets are received having a plurality of variant formats, and transferred to a host system, compromising:

13                    a first port on which incoming data is received at a  
data transfer rate;

15                   a buffer, coupled to the first port, storing  
                  received packets;

16 a second port, coupled with the buffer, through which transfer of packets to the host is executed;

18 a packet filter, coupled to the first port, which identifies packets being stored in the buffer having one of the plurality of variant formats;

first logic coupled with the buffer and the second port, to transfer packets from the buffer to the second port; and

second logic coupled with the buffer, and responsive  
to the packet filter to read and process data in the  
identified packets from the buffer, and to produce a data  
value dependant on contents of the packet prior to  
transfer of the identified packets to the second port by  
the first logic.

25 | '884 patent 11:8-27.

26 //

27 //

28 | //

## United States District Court

For the Northern District of California

1. "a buffer, coupled to the first port, storing received  
packets"

The parties dispute whether the '884 patent is limited to  
embodiments with a buffer large enough to store more than one  
packet at a time. 3Com offers the construction "a temporary  
storage device connected to the first port for received packets."  
Doc #81 (05-0098) at 37. D-Link propounds the construction "a  
temporary storage device connected to the first port that is of  
sufficient size to store a plurality of received packets." Id at  
37-38. Realtek does not propose a specific construction. Id.

D-Link advances several considerations to support its  
construction. First, D-Link makes much of the fact that the '884  
specification usually refers to packets in the plural. See, for  
example, '884 patent, 1:66-2:5 ("In particular, the present  
invention provides an interface that comprises the first port on  
which incoming data is received at the data transfer rate of the  
network, a buffer coupled to the port that stores received packets,  
and a second port coupled with the buffer through which transfer of  
packets to the host is executed." (emphasis added)). The  
specification's repeated references to "packets" in the plural are  
simply too tenuous a basis for limiting the scope of claim one.  
Whether this usage reflects the patentee's intent to claim only  
embodiments with buffers large enough to store multiple packets at  
once is, at the very best, ambiguous. For, as 3Com posits, it  
could be that "'packets' refers to the obvious fact that multiple  
packets will go through the claimed device, not to the capacity of  
a particular component therein to hold more than one packet at  
once." Doc #88 at 6.

## United States District Court

For the Northern District of California

1           Accordingly, the court adopts "a temporary storage device  
2 connected to the first port for received packets."

3

4 2. "read and process data in the identified packets from the  
5 buffer"

6           Only the meaning of "from the buffer" is in dispute.  
7 3Com posits that this term requires no construction because it  
8 means precisely what it says, "from the buffer." Doc #330 (03-  
9 2177) at 28. D-Link and Realtek both propose "while the packets  
10 are in the buffer." Doc #81 (05-0098) at 42. The dispute, then,  
11 turns on whether data must be processed while in the buffer.

12           3Com argues that "from the buffer" needs no construction.  
13 The word "from" in this claim shows that the buffer is the source  
14 of the data to "read and process." 3Com's contends that the term  
15 covers "a packet that was once in the buffer." Doc #340 at 22. D-  
16 Link, however, argues that 3Com clearly disclaimed such a broad  
17 meaning. D-Link relies upon 3Com's characterization of the  
18 invention in the prosecution history that:

19           The present invention is directed to a network  
20 interface which has logic to process packets in  
21 the frame buffer that are identified by a  
packet filter as having a particular format,  
before the packets are transferred to the host  
processor to which they are addressed.

22 Doc #339 (Gutman decl) (03-2177) ex L at 2 (emphasis added).  
23 Notably, this is a characterization of the invention as a whole and  
24 not an attempt to distinguish a prior art reference. 3Com  
25 identifies this statement as referring "to the packets from the  
26 packet filter claim element." Doc #88 (05-0098) at 8. 3Com's  
27 argument runs counter to the plain meaning of the statement. In  
28 this statement, the packet filter merely identifies packets to be

## United States District Court

For the Northern District of California

1 processed. The frame buffer, by contrast, is the disclosed  
2 location where processing occurs. One of ordinary skill in the art  
3 would read the characterization of the invention in the statement  
4 above as a clear indication that the disclosed invention will  
5 "process packets in the frame buffer."

6 In light of '884 patent's prosecution history, the court  
7 construes "from the buffer" to mean "while the packets are in the  
8 buffer."

9  
10 3. "second logic coupled with the buffer, and responsive to the  
11 packet filter to read and process data in the identified  
12 packets from the buffer, and to produce a data value dependent  
on contents of the packet prior to transfer of the identified  
packets to the second port by the first logic"

13 The dispute turns on the applicability of 35 USC §112(6)  
14 to this limitation. D-Link contends that the term "logic" fails to  
15 recite sufficient structure such that §112(6) should apply  
16 notwithstanding the presumption against its applicability due to  
17 the absence of the words "means for." Doc #78 (05-0098) at 23-24.

18 "A claim limitation that actually uses the word 'means'  
19 invokes a rebuttable presumption that § 112(6) applies. By  
20 contrast, a claim term that does not use 'means' will trigger the  
21 rebuttable presumption that § 112(6) does not apply." CCS Fitness,  
22 288 F3d at 1369 (internal citations omitted). This presumption is  
23 "a strong one that is not readily overcome." Lighting World, Inc v  
24 Birchwood Lighting, Inc, 382 F3d 1354, 1358 (Fed Cir 2004).

25 D-Link can overcome this presumption by showing that the  
26 claim limitation "fails to recite sufficiently definite structure."  
27 Apex Inc v Raritan Computer, Inc, 325 F3d 1364, 1372 (Fed Cir 2003)  
28 (quotations omitted). This structure need not be "a single

## United States District Court

For the Northern District of California

1 well-defined structure." Greenberg v Ethicon Endo-Surgery, Inc, 91  
2 F3d 1580, 1583 (Fed Cir 1996).

3 It is appropriate to consult dictionaries in connection  
4 with this inquiry. Linear Technology Corp v Impala Linear Corp,  
5 379 F3d 1311, 1320 (Fed Cir 2004); see also Apex, 325 F3d at 1373.  
6 Technical dictionary definitions suggest that the term "logic"  
7 itself connotes some structure. See McGraw-Hill Dictionary of  
8 Scientific and Technical Terms, 1231 (6th ed 2003) (defining  
9 "logic" as a "[g]eneral term for various types of gates, flip-flops  
10 and other on/off circuits used to perform problem-solving functions  
11 in a digital computer"); IBM Dictionary of Computing, 396 (10th ed  
12 1994) (defining "logic" as "[t]he systematized interconnection of  
13 digital switching functions, circuits or devices").

14 The Federal Circuit addressed the similar issue of  
15 whether "circuit" conveys sufficient structure in Linear  
16 Technology. 379 F3d 1311. The limitation at issue was "a first  
17 circuit for monitoring a signal from the output terminal to  
18 generate a first feedback signal." Id at 1320. The Linear court  
19 found this limitation to recite "the respective circuit's operation  
20 in sufficient detail to suggest structure to persons of ordinary  
21 skill in the art." Id at 1320-21. The Linear court further stated  
22 that when "structure-connoting term 'circuit' is coupled with a  
23 description of the circuit's operation, sufficient structural  
24 meaning generally will be conveyed to persons of ordinary skill in  
25 the art." Id at 1320. Because of both the similarity between  
26 "logic" and "circuit" and the similarity of the subsequent  
27 functional language, the analysis in Linear is highly relevant to  
28 the construction of claim one.

## United States District Court

For the Northern District of California

1           The difference between the Linear term "circuitry" and  
2 the "logic" term in this case is not significant. As previously  
3 noted, several technical dictionary define "logic" in terms of  
4 circuits. See McGraw-Hill Dictionary of Scientific and Technical  
5 Terms, 1231 (6th ed 2003) (defining "logic" as a "[g]eneral term  
6 for various types of gates, flip-flops, and other on/off circuits  
7 used to perform problem-solving functions in a digital computer");  
8 IBM Dictionary of Computing, 396 (10th ed 1994) (defining "logic"  
9 as "[t]he systematized interconnection of digital switching  
functions, circuits, or devices").

11           In addition, there is no significant difference between  
12 the additional functional language. In the Linear claim, the  
13 circuitry is "for monitoring a signal from the output terminal to  
14 generate a first feedback signal." Claim one states that the logic  
15 is "to read and process data in the identified packets from the  
16 buffer, and to produce a data value dependent on contents of the  
17 packet prior to transfer of the identified packets to the second  
18 port by the first logic." Both claims include specific functional  
19 language.

20           Because of the similarities between the claim addressed  
21 in Linear and claim one, the court can see no reason to diverge  
22 from the Linear analysis. The term "logic" defines some structure  
23 and additional functional language. This functional language is  
24 sufficiently detailed "to suggest structure to persons of ordinary  
25 skill in the art." Id at 1320-21; see also PCTEL, Inc v Agere  
26 Systems, Inc, 2005 WL 2206683 (ND Cal 2005) ("[S]election logic"  
27 did not fall under paragraph six.). Accordingly, the court finds  
28 that "logic" does not fall within 35 USC § 112(6).

## United States District Court

For the Northern District of California

Having found that §112(6) does not apply, the court turns next to construing the term "logic." 3Com proposes "circuitry and/or programming." Doc #81 (05-0098) at 48. D-Link proposes "processing resources configured to perform binary tasks where the processing resources operate at speeds slower than the stream of the incoming packet stream." Id at 48-49. Realtek has not submitted a specific proposal.

The specification discloses a network interface:

with limited intelligence, implemented using a relatively slower, and lower cost embedded processor, supported by dedicated hardware logic for the purposes of intercepting certain packets being received via the network. In particular, the present invention provides an interface that comprises the first port on which incoming data is received at the data transfer rate of the network, a buffer coupled to the port that stores received packets, and a second port coupled with the buffer through which transfer of packets to the host is executed.

'884 patent 1:63-2:5. This language suggests that the first port and buffer are "dedicated hardware." Claim one discloses that the buffer is "coupled to the first port," suggesting that "coupled" is a hardware-to-hardware connection. Id at 1:13. Claim one also states that the second logic is "coupled with the buffer." Id at 1:22. Use of the word "coupled" with the second logic suggests the second logic is also a hardware component.

Although the invention relates to a "lower cost embedded processor," no such processor is explicitly recited by claim one. The second logic is described in claim one as being used "to process data," suggesting that the second logic is indeed a low-cost processor. Claim two supports this view by stating that the second logic comprises "a general purpose processor module." In

United States District Court

For the Northern District of California

1 viewing all of the intrinsic evidence, 3Com's proposal is  
2 impermissibly broad.

3 While 3Com's proposal is too broad, D-Link's proposal is  
4 too narrow. The specification discusses a low-cost processor but  
5 does not disclose that such a processor is required. Even if a  
6 processor were required, there is no support for a specific  
7 performance limitation such as "speeds slower than the stream of  
8 the incoming packet stream" as D-Link's proposal imposes.

9 Although the evidence weighs heavily against a  
10 construction of "programming," a construction of "circuitry" was  
11 perfectly consistent. Accordingly, the court adopts the modified  
12 proposal, "circuitry."

13

14 IV

15 The court has construed all disputed claim terms and  
16 phrases of the patents-in-suit. Notwithstanding any further orders  
17 the court may make regarding claim construction, this order shall  
18 be deemed to be the "claim construction order" for scheduling  
19 purposes. The parties shall appear for a case management  
20 conference on February 6, 2007, at 2:00 pm.

21

22 SO ORDERED.

23



24  
25 VAUGHN R WALKER

26

27 United States District Chief Judge

28